REMARKS

In the Official Action the Examiner rejected all of the claims under 35 U.S.C. § 102 as being anticipated by the Defrance et al reference, U.S. Patent No. 4,840,514. Applicant has amended all of the independent claims of the present application to clarify the distinctions between Applicant's invention and the Defrance et al reference.

With reference to Claim 1, for example, Applicant's invention is directed to an aircraft servicing pit comprising a subsurface pit enclosure located within the walls 22, illustrated in Fig. 3, and beneath a ground surface 14 across which aircraft travel while on the ground. A pit lid support 12 is provided in the form of a frame. The pit lid support frame 12 has an upper face 18 that is level with the ground surface 14, as illustrated in Fig. 3. The pit lid support frame 12 is located atop the subsurface pit and has an access opening 20 down into the pit enclosure. The access opening 20 is surrounded by a lid supporting rim 24 which is located beneath the upper face 18.

A hinge pocket 25 is illustrated in Figs. 2 and 6 and has opposing side walls 26 and 28 defined in the pit lit support frame 12 immediately adjacent the lid access opening 20 and the lid supporting rim 24. A pair of hinge axle end slots 32 and 33 are defined in the lid support frame 12 on opposing sides of the hinge pocket 25. The hinge axle end receiving slots 32 and 33 extend in opposite directions from the opposing hinge pocket side walls 26 and 28. The hinge axle end slots 32 and 33 are inclined upwardly and away from

the access opening 20 and intersect the upper face 18 of the pit lid support frame 12.

Applicant has further amended Claim 1, and the other independent claims of the application, to point out the distinctions of the hinge axle end slots 32 and 33 of the present invention from the outermost regions 10 of the trough 7 of the Defrance et al reference. Specifically, the independent claims of the present application now require the hinge axle end slot 32 and 33 to have bottom surfaces 34 and to be straight and of a uniform width and depth throughout their lengths, as described in the Specification at page 9, lines 14-16.

The claimed invention also has a pit lid 40 having a body configured to seat upon the lid supporting rim 24 and thereby close the access opening 20. The pit lid 40 also has a hinge leaf 46 projecting laterally from the body and including a pair of hinge axle ends 48 and 50 that project in opposite directions from the opposite sides of the hinge leaf 46 so as to extend into the pair of hinge axle end slots 32 and 33.

In contrast to the ends of the T-shaped lug or shoe 16 of the Defrance et al reference, Applicant has amended the independent claims to require the hinge axle ends 48 and 50 to be of a uniform circular cross section throughout, as illustrated in Figs. 3, 4, and 5 of the drawings and as described in the Specification at page 13, lines 1-9. In contrast, the transverse pivot shaft 18 of the T-shaped hinge lug or shoe 16 of the Defrance et al reference has a generally cylindrical cross section, but with a flattened upper surface 19 (col. 2, lines 59-64).

The fully cylindrical hinge axle ends 48 and 50 of Applicant's hinge leaf 46, like the transverse pivot shaft 18 of the Defrance et al reference, extend into the pair of hinge axle end slots 32 and 33. Unlike the Defrance et al reference, however, the pit lid 40 of Applicant's invention is completely removable from the lid support 24 when it is swung open to a disposition **beyond perpendicular alignment** with the upper face 18 of the pit lid support frame 12. In contrast, in the Defrance et al reference the manhole cover 4 is not completely removable from the manhole frame 1 when swung open to a disposition beyond perpendicular alignment. This is evident from Fig. 7 which illustrates that in such a position the ends of the pivot shaft 18 are entrapped between the overhung lips 9 (Defrance et al, col. 2, lines 46-48).

Furthermore, the hinge axle ends 48 and 50 of the pit lid 40 of Applicant's invention are not only captured in the hinge axle end slots 32 and 33 when the pit lid 40 is shut to close the access opening 20, as are the ends of the transverse pivot shaft 18 of the Defrance et al reference, but they also seat against the bottom surfaces 34 of the hinge axle end slots 32 and 33 when the pit lid 40 is shut to close the access opening 20. This feature is described in the Specification at page 15, lines 4-8 and illustrated in Fig. 3 of the drawings.

The distinction between the contact by Applicant's hinge axle ends 48 and 50 with the bottom surfaces 34 of the hinge axle end slots 32 and 33 and the absence of contact between the ends of the transverse pivot shaft 18 with the trough 7 in the Defrance et al reference is significant. The Defrance et al reference purposefully avoids such contact to avoid any clanking noise during the passage of vehicles over the manhole 4 (Defrance et al, col. 3, lines 8-13). The Defrance et al construction specifically provides that, when the cover is closed, the hinge lug 16 lies out of engagement with any of the walls or surfaces of the frame receptacle 5.

While such a construction would avoid clanking due to the passage of vehicles, it involves a significant disadvantage when the ends of the pivot shaft 18 are not of circular cross section and, when the cavities in which they fit are not straight, as is the case with the Defrance et al reference. Specifically, with such a construction dirt and debris can easily wash down into the receptacle 5 of the Defrance et al reference and become packed in beneath the ends of the pivot shaft 18. This would be particularly disadvantageous in an aircraft servicing pit construction in which the pit lid 40 is closed for lengthy periods of time.

Applicant encloses herewith a marked up copy of Fig. 6 of the Defrance et al reference with an illustration in red of the manner in which dirt and debris would likely become packed in beneath the underside of the pivot shaft 18. Once dirt and debris

becomes packed in this manner, the manhole 4 might well become jammed shut, since the buildup of dirt and debris would prevent free rotation of the shaft 18. This obstruction is aggravated by the overhanging receptacle lips 19, which would certainly interfere with the rotation of the pivot shaft 18 if there is an accumulation of dirt beneath the shaft 18. The noncylindrical pivot shaft ends 18 of the hinge lug 16 could well become jammed between the buildup of debris indicated in the enclosed marked-up copy in the region 8 of Fig. 6 and the overhanging lips 9.

Applicant has also enclosed herewith a marked up copy of Fig. 3 of the present application with a buildup of dirt and debris in the hinge axle end slots 32 and 33, also shown in red. However, since the hinge axle ends 48 and 50 are of uniform circular cross section throughout, and since the hinge axle end slots 32 and 33 are straight and of a uniform width throughout their lengths, there is no obstruction to the rotation of the hinge axle ends 48 and 50. They are able to rotate freely within the hinge axle end slots 32 and 33 when the pit lid 40 is moved from the position of Fig. 3 to the position of Fig. 4. Moreover, since the hinge axle end slots 32 and 33 are straight and of a uniform circular cross section throughout, the pit lid 40 can be readily withdrawn, as indicated by the directional arrow 56 in Fig. 4, despite the buildup of dirt and debris atop the hinge axle ends 48 and 50. In fact, due to the straight path of withdrawal, the system of Applicant's invention is self-cleaning, in that withdrawal of the hinge axle ends 48 and 50 by

withdrawal of the pit lid 40, as indicated in Fig. 4, would result in dirt and debris being pulled out of the hinge axle end slots 32 and 33 by the hinge axle ends 48 and 50.

Furthermore, and as described in the Specification at page 15, lines 9-12, because the hinge axle end slots 32 and 33 are inclined upwardly and away from the access opening 20 and intersect the upper face 18 of the pit lid support frame 12, withdrawal of the heavy pit lid 40 is at an ergonomicly preferable height and orientation for lifting it free from the hinge axle end slots 32 and 33. That is, there would be far less back strain to a worker pulling the pit lid 40 at an angle away from the frame 12 as indicated by the directional arrow 56 in Fig. 4, since the force in exerted at an incline (Specification, page 14, lines 8-13).

In contrast, the openings to the surface of the manhole frame 1 in the Defrance et al reference are not at an incline, but rather are oriented straight up, as illustrated in Fig. 8 of that reference. As a consequence, a workman cannot pull a manhole cover 4 of the Defrance et al reference out of the receptacle 5 at an incline as shown in Fig. 7 of that reference, since the overhanging lips 9 prevent withdrawal of the manhole cover 4 at that angle. To the contrary, the manhole cover 4 must be oriented vertically and the T-shaped hinge 16 shifted laterally to the position of Fig. 8. Only then can the manhole cover 4 be withdrawn. The force of withdrawal must be exerted vertically upwardly, perpendicular to the manhole frame 1, as illustrated in Fig. 8 of the Defrance et al reference. This would

involve far greater back strain to a workman attempting to separate the manhole 4 from the frame 1 than occurs in the separation of Applicant's pit lid 40 from the pit lid frame 12.

A further advantage of Applicant's invention is that, because the hinge axle end slots 32 and 33 are straight and of a uniform width and depth throughout their lengths, they can be created in the frame 12 far more easily than the irregularly shaped receptacle 5 in the Defrance et al reference. As explained in the Specification at page 9, lines 14-16, the slots 32 and 33 in Applicant's invention are either milled or molded into the structure of the pit lid support 12. It is evident that fabrication could be performed quite easily, since there are no overhangs.

In contrast, due to the overhanging lips 9 in the structure of the Defrance et al reference, fabrication of the manhole frame 1 is much more difficult. That is, the receptacle 5 cannot be created from the surface of the manhole frame 1 by a simple milling operation. It seems much more likely that fabrication would have to be performed by a more complex molding operation involving multipart molds or molds with portions that are destroyed with the creation of each piece. In any event, fabrication of the irregularly shaped receptacle 5 with overhanging lips 9 in the manhole frame 1 of the Defrance et al reference would be far more difficult, and therefore considerably more expensive, than the fabrication of Applicant's pit lid support frame 12.

As presently defined, all of the independent claims of Applicant's invention have the

following structural features that are neither disclosed nor suggested in the Defrance et al reference, nor in any of the other references cited:

1. hinge axle ends having a uniform circular cross section throughout;

2. hinge axle end slots that are straight and of a uniform width and depth throughout their lengths; and

3. hinge axle ends that seat against the bottom surfaces of the hinge axle hinge slots when the pit lid is shut.

The Defrance et al reference lacks all of these features.

As held by the Court of Appeals for the Federal Circuit in Kalman v. Kimberly-Clarke Corp., 713 F.2d 760, 771, 218 USP1 781, 789 (CAFC 1983):

> "there is no anticipation "unless all of the same elements are found in exactly the same situation and united in the same way...in a single prior art reference."

Furthermore, modification of the Defrance et al reference to include these features is not only not disclosed nor suggested in that reference, but would be directly contrary to the structural requirement of the Defrance et al reference, i.e., col. 3, lines 8-14 and 20-26.

For all of the foregoing reasons Applicant respectfully requests reconsideration of the rejection of claims, allowance of all claims, and passage of the application to issue in

due course.

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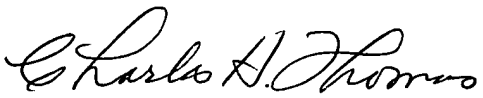
Respectfully submitted,



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